

SYMBOL LIST

CS	COLD WATER SUPPLY PIPE
CR	COLD WATER RETURN PIPE
HS/R	HOT WATER COMBINATION SUPPLY & RETURN PIPE
EG	ETHYLENE GLYCOL SUPPLY OR RETURN PIPE
O.A.	OUTSIDE AIR
S.A.	SUPPLY AIR (48 DEGREES DRY BULB, YEAR - ROUND)
R/E	RETURN / EXHAUST AIR TO EVAPORATIVE COOLER
D.A.	DISCHARGE AIR TO ATMOSPHERE

ET-1

SYSTEM EXPANSION TANK

ET-2

RUNAROUND COILS EXPANSION TANK

ET-3

EVAPORATIVE COOLER EXPANSION TANK

HEX

HEAT EXCHANGER

HX-1

SPRAYED COIL / HUMIDIFICATION HEAT SOURCE ^{HEAT EXCHANGER}

HX-2

SALVAGE ENERGY TO REMOTE HEATING LOADS ^{HEAT EXCHANGER}

HX-3

HOT WATER / ETHYLENE GLYCOL / EVAPORATIVE COOLER ^{HEAT EXCHANGER}

V_B

MODULATING 3 WAY, ZONE BLENDING VALVE

V₁

MODULATING 3 WAY MIXING VALVE (AIRSIDE) ^{HEATING HUMIDIFICATION AND COOLING COIL}

V₂

MODULATING 3 WAY MIXING VALVE (ROOMSIDE COLD WATER LOOP)

V₃

2 POSITION 3 WAY CHANGE OVER VALVE (UP STREAM OF ROOMSIDE EQUIPMENT)

V₄

2 POSITION 3 WAY DIVERTING VALVE

V_{3A}

2 POSITION 3 WAY CHANGE OVER VALVE (DOWN STREAM OF ROOMSIDE EQUIPMENT)

PUMP AS FOLLOWS

ALL PUMPS ARE CONSTANT SPEED UNLESS OTHERWISE INDICATED
B-BLENDING PUMP, ROOMSIDE EQUIPMENT

PUMP 1 - COLD WATER, EVAPORATOR PRIMARY LOOP

PUMP 2 - COLD WATER SUPPLY TO AIRSIDE EQUIPMENT COOLING COIL

✓* PUMP 3 - COOLING COIL SPRAY PUMP

* PUMP 4 - COLD WATER SUPPLY TO ROOMSIDE LOOP

PUMP 5 - COLD WATER STORAGE TANK BYPASS

PUMP 6 - HOT WATER COMBINATION SUPPLY / RETURN LOOP

PUMP 7 - WATER HEATER BYPASS

✓* PUMP 8 - HX-1 BYPASS

✓* PUMP 9 - PREHEAT / PRECOOL RUNAROUND COIL LOOP

PUMP 10 - HX-2 BYPASS

PUMP 11 - HX-2 SALVAGE ENERGY, SUPPLY / RETURN LOOP

PUMP 12 - HOT WATER STORAGE TANK BYPASS

PUMP 13 - HX-3 BYPASS

PUMP 14 - EVAPORATIVE COOLER LOOP (HOT WATER, HX-2, ETHYLENE GLYCOL)

PUMP 15 - EVAPORATIVE COOLER SPRAY PUMP

PUMP 16 - HX-1 SECONDARY LOOP (HUMIDIFICATION HEATING SOURCE)

THERMOSTAT AS FOLLOWS

T 1. COLD WATER SUPPLY FROM EVAPORATOR 40 DEGREES SUMMER, RAMP UP TO 52 DEGREES WINTER

T 2. AIRSIDE SUPPLY AIR 48 DEGREES DRYBULB, WET BULB, DEWPOINT YEAR ROUND

T 3. COLD WATER SUPPLY TO ROOMSIDE EQUIPMENT, 52 DEGREES YEAR ROUND

T 4. COLD WATER STORAGE TANK

T 5. HOT WATER SUPPLY 95 DEGREES SUMMER, RAMP UP TO 120 DEGREES WINTER

T 6. HOT WATER STORAGE TANK

T 7. OUTSIDE TEMPERATURE

TZ ROOMSIDE ZONE THERMOSTAT

TR ROOMSIDE FLUID RETURN THERMOSTAT

T8 REHEAT COIL DISCHARGE TEMPERATURE

T9 RUNAROUND PREHEAT COIL DISCHARGE TEMPERATURE

★ - indicates a Variable Frequency Drive pump

★ ★ - indicates pump CONTROLLED BY A DISCHARGE PRESSURE CONTROLLER

✓: INDICATES PUMPS ARE CONTROLLED BY TEMPERATURE

FIG. 2

HOT WATER AND COLD WATER SUPPLY TEMPERATURES OF
VS. OUTSIDE TEMPERATURE °F
(CENTRAL EQUIPMENT)

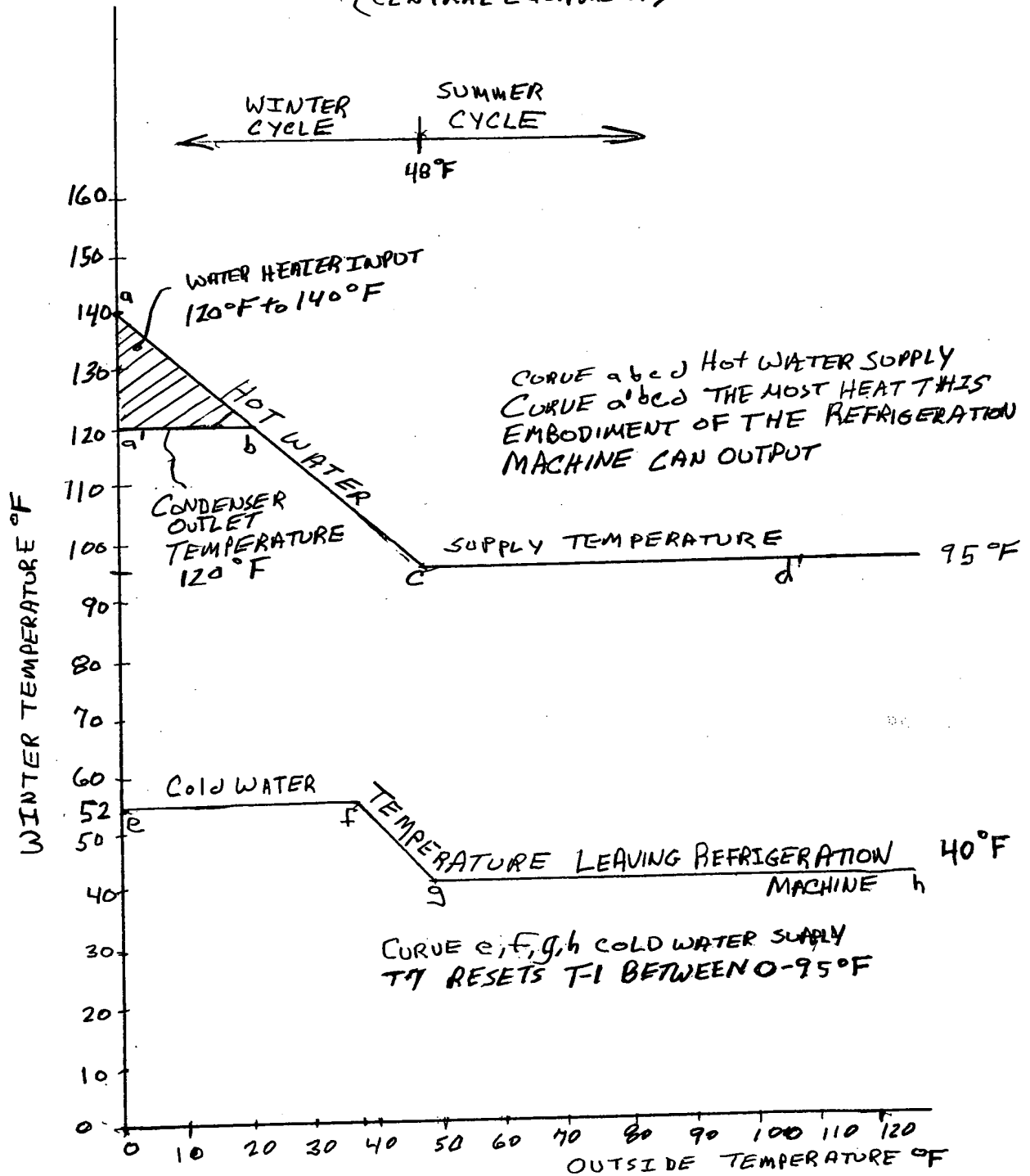
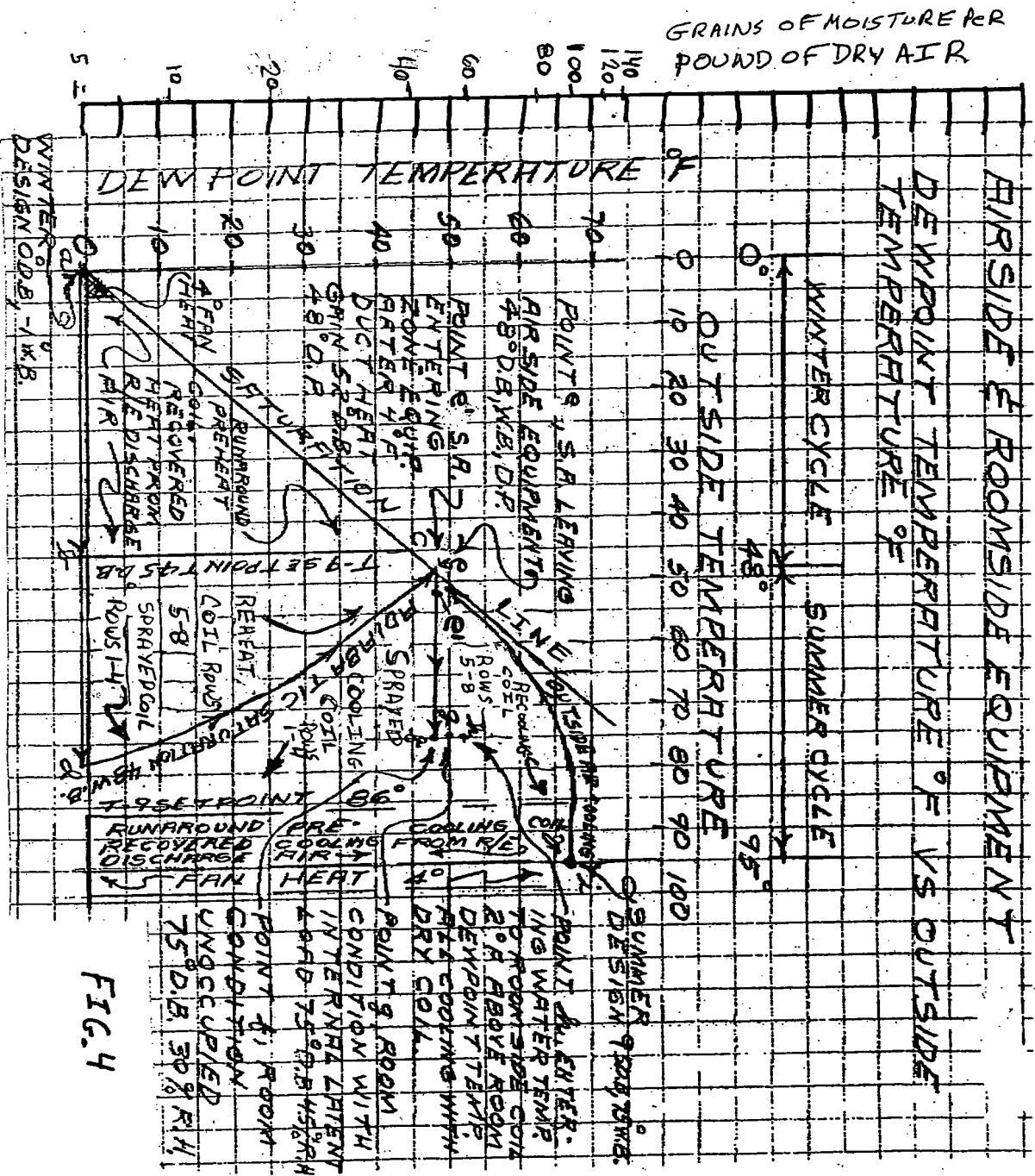


FIG. 3



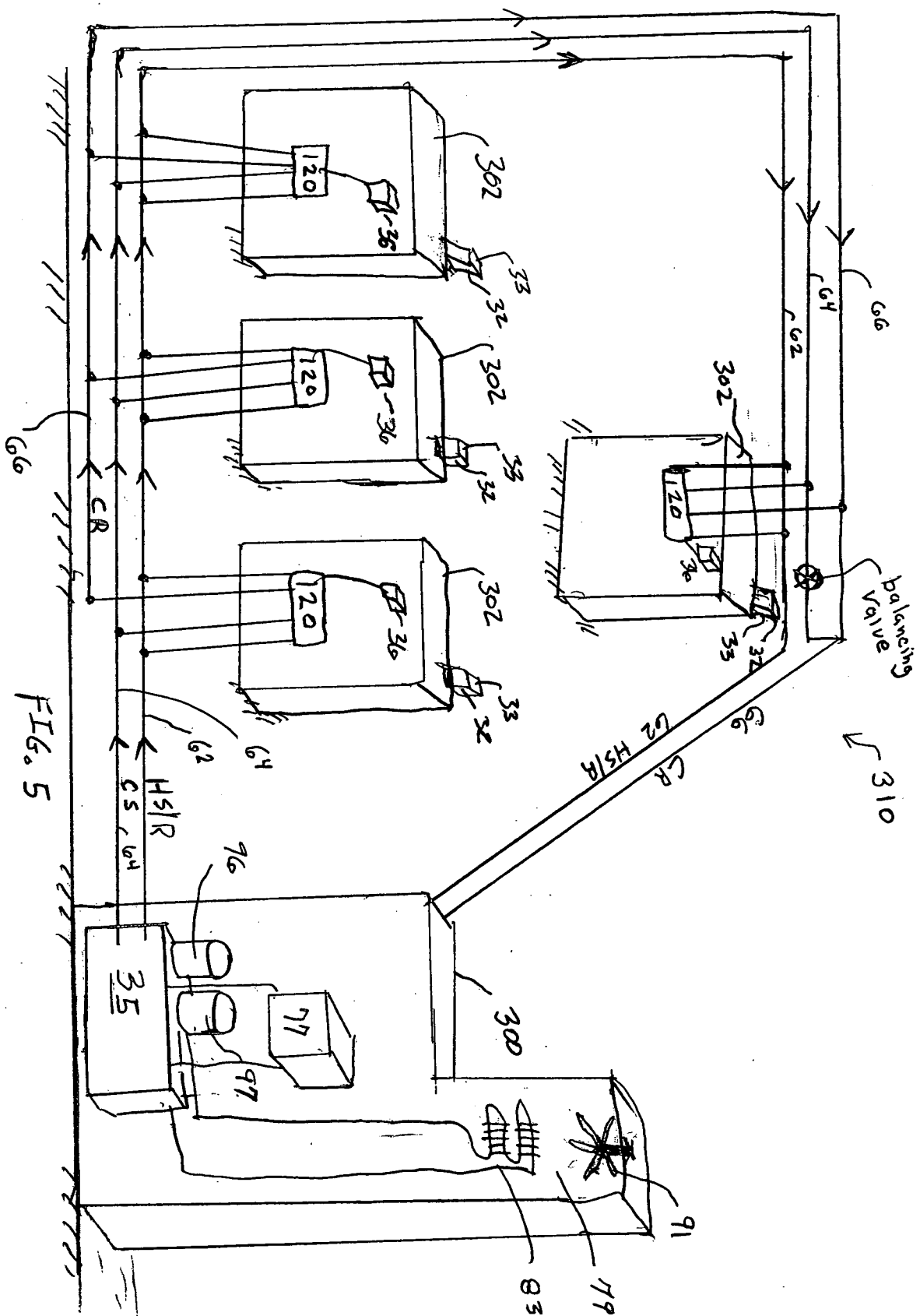


FIG. 5